

The Marine Corps Bridge Company (MCBC) of the 8th Engineering Support Battalion, Camp Lejeune, N.C., needed a better way to communicate. They were relying on hand signals during high-noise bridging and rafting operations, in which they use diesel-powered boats and vehicles to form bridges and rafts. Hand signals can lead to confusion for all but the most basic commands, and often require a commander to stand in dangerous locations.



The MCBC submitted a request for help to the Office of Naval Research's Tech Solutions program, which provides Sailors and Marines with a web-based system to request solutions to their technology needs. The Marines envisioned a helmet-mounted communications (HMC) system for real-time, wireless communications. The Naval Surface Warfare Center Carderock Division's Combatant Craft Division proposed a solution that would modify and integrate commercial off-the-shelf equipment and in 2004 received ONR Tech Solutions funding to develop a functional system.

The Carderock design was based on a wireless system being developed by Telephonics Corporation for Army aircraft. The Army program needed a wireless system that would allow crews to walk freely around an aircraft to conduct inspections. This system was "stripped" down to provide those functions required by Marine Corps missions and to make the system more user friendly. The software-driven, wireless transceivers allow seven people to talk simultaneously (full duplex) and up to 32 people to listen on any one of 50 channels.

The system includes a Gentex TCH helmet, designed for ease of donning with a headset, and a Peltor headset which incorporates a talk-through circuit so that a user can listen to the ambient environment while maintaining full hearing protection. The talk-through circuit immediately reduces sounds louder than 82 decibels.

Bridging and rafting operations typically require 15 people, therefore an eighteen-user system was delivered to the MCBC for evaluation at the U.S. Coast Guard Special Mission Training Center on Marine Corps Base Camp Lejeune. A 50-user wireless system was delivered to the U.S. Navy Deep Blue program and deployed for use in the global war on terrorism. Future plans include the installation of this type of system on twenty-four of the Navy's 135-foot long Landing Craft, Utility (LCU), U.S. Coast Guard Response Boat-Medium (RB-M), and other military watercraft.

Specifications:

Operational time: >8 hours	Frequency: 2.4 Ghz	Developer: NSWC, Carderock Division
No. of channels: 50	Range: Up to 1500ft LOS	No. users per channel: 32 (7 full duplex)